

The physical workload analysis method : application of ergonomics standards for companies of any size

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The method of analysis of the physical workload is designed to help companies for :

- Identify and analyze work situations involving heavy physical work such as manual handling, push / pull of loads, postures and physical effort,
- assess the risks these situations generate,
- focusing on prevention solutions.

It is particularly suitable to the small and very small companies, and can be implemented by different people: occupational doctors, technical executives, staff representative, Host security, operators, ...

1. The method consists of four phases (Fig 1) :

1st phase: identification and prioritization in the company of work situations recognized with high physical workload,

This phase consists in two stages.

The first step is a subjective analysis of the physical load from four key questions to determine if there is a physical load in a work situation or a work station. This screening can identify if these activities or tasks present a physical risk.

The second step allows the identification and prioritization of physical workload in the activity or task(s) of a work unit. The use of a model of data collection on physical workload per work unit (workshop, service department, ...) supports this identification. The model of quotation is given in figure 2.

This identification is performed in a "going across" the company. A working group (management, employees, occupational doctor, Health and safety manager, ...) made a visit of the workshop and workstations to identify and rate the indicators from the set of questions. Then the working group complete the model and makes the total for each model filled in the field. The time allotted for dialogue can help to make arbitration on the quotations of the models and the hierarchy of jobs at risk. The second phase of analysis will be implemented for situations and workstations collecting much as physical load or recognized by the group as can be evaluated and improved quickly, easily.

2nd phase: detailed analysis of work stations identified in the first phase of identification and risk assessment.

The assessment aims to identify, even without calculation, but only through the use of pre-built scenarios of the work environment, the presence of exposure conditions: the absence of significant risk (code green) or presence of critical conditions or unacceptable (code yellow or red) are established with reference to the European and international standards in ergonomics in the field of Safety of machinery - Human physical performance. The correspondence between the model of quotation and the standards values is given in figure 3.

Figures 1 and 2 summarize the principle of quotation and the general outline of the method.

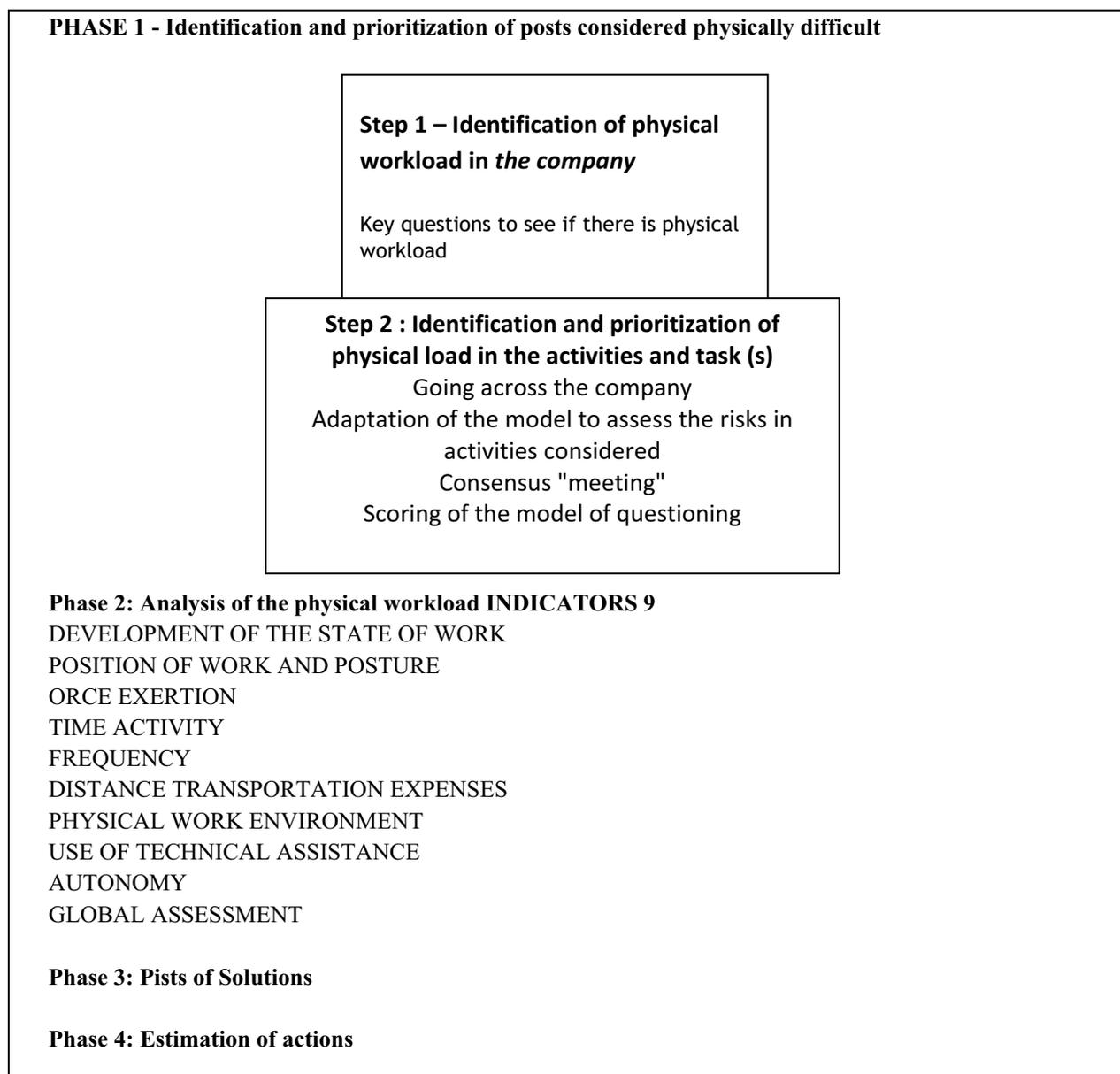


Figure 1 -: Schematic overview of the method of analysis of the physical workload

3rd phase: research solutions.

Solutions must be built around the organizational dimensions, technical and human by a participatory approach. Tables of job evaluation can help in the choice of actions. Training in the prevention of risks related to physical activity adapted to work situations involved is a mean to spread actions to employees.

4th phase: evaluation of implemented solutions.

The same simplified procedures are used to evaluate actions.

Intensity	VERY HEAVY	++	++	+++	+++
	HEAVY	+	++	++	+++
	MODERATE	0	+	++	++
	LOW	0	0	+	++
		CASUAL	INTERMITTENT	FREQUENT	PERMANENT
	Exposure duration				

Figure 2 - General principles of trading: risk levels associated with physical workload.

2. Model of quotation

The proposed evaluation method based on two parameters: the intensity of the physical load and duration of exposure.

4 levels of intensity and exposure time are proposed for two phases of analysis. Each level is defined in relation to scales and science recognized and validated in international publications, standards, French, European and international. Working time reference for the assessment of physical load is the daily duration of work. The proposed listing must be adapted to the cycle of work in certain occupations may be weekly, monthly or yearly.

3. References values and correspondence with ergonomics standards

The corresponding values for various parameters for rating the intensity and duration of exposure are given in the table below.

4. Conclusion

This method was developed by OHS to be used flexibly. It is a participatory and iterative method. Developed in the form of closed questions it allows quick answers and encourages consensus. It enables to the OSH of enterprises, but also executives managers close to the leaders of small companies to do their risk assessment of physical activity, approaching the requirements of standards and not necessarily use an external intervention.

Table 1
Standards reference values for the parameters considered

Uncommon :	<30min, <5% of the time of the task,
Intermittent :	[30 -120 min], 5 / 25% of working time
Common :	[2-6 h], 25/75% of working time
Permanent :	> 6 hours,> 75% of working time
Weak :	[-0.5 0] on the Borg scale (CR10), <5% FMV, <5 kg
Moderate :] 0.5 to 3 [on the Borg scale (CR10), [5 to 30 [% FMV, [5-15] kg
Forte :	[3-5 [on the Borg scale (CR10), [30-50 [% FMV,] 15 to 25] kg
Very high :	≥ 5 on the Borg scale (CR10), ≥ 50% FMV,> 25 kg